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| APPLICATION NO. | FILING DATE | FIRST NAMED INVENTOR | ATTORNEY DOCKET NO. | CONFIRMATION NO. |
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| 09/924,892 | 08/08/2001 | Tadashi Iwasa | 5259-000001 | 3699 |

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| EXAMINER | |
|---|---|
| PHAM, HAI CHI | |

| ART UNIT | PAPER NUMBER |
|---|---|
| 2861 | |

DATE MAILED: 06/18/2004

Please find below and/or attached an Office communication concerning this application or proceeding.

| Office Action Summary | Application No. | Applicant(s) | |
|---|---|---|---|
| | 09/924,892 | IWASA, TADASHI | |
| | Examiner | Art Unit | |
| | Hai C Pham | 2861 | |

*-- Th MAILING DATE of this communication appears on the cover sh et with the correspondenc address --*

**Period for Reply**

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

**Status**

1)☒ Responsive to communication(s) filed on *06 April 2004*.

2a)☐ This action is **FINAL**. 2b)☒ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

**Disposition of Claims**

4)☒ Claim(s) *26,27,29-32 and 34* is/are pending in the application.

4a) Of the above claim(s) _____ is/are withdrawn from consideration.

5)☐ Claim(s) _____ is/are allowed.

6)☒ Claim(s) *26,27,29-32 and 34* is/are rejected.

7)☐ Claim(s) _____ is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

**Application Papers**

9)☐ The specification is objected to by the Examiner.

10)☐ The drawing(s) filed on _____ is/are: a)☐ accepted or b)☐ objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11)☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

**Priority under 35 U.S.C. § 119**

12)☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

a)☒ All b)☐ Some * c)☐ None of:

1.☒ Certified copies of the priority documents have been received.

2.☐ Certified copies of the priority documents have been received in Application No. _____.

3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

**Attachment(s)**

1) ☒ Notice of References Cited (PTO-892)
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3) ☐ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08) Paper No(s)/Mail Date _____.
4) ☐ Interview Summary (PTO-413) Paper No(s)/Mail Date. _____.
5) ☐ Notice of Informal Patent Application (PTO-152)
6) ☐ Other: _____.

## DETAILED ACTION

### *Claim Objections*

1. Claims 26 and 32 are objected to because of the following informalities:

Claim 26:

- The transitional phrase "comprising" at line 3 is improperly used since it solely conveys the nature or significance of the laser beam instead of being used as a transitional phrase for defining the scope of the claim. It is suggested to change "radiates a laser beam comprising an image data signal onto the film" to -- radiates a laser beam in accordance with an image data signal onto the film--.

Claim 32:

- The following "as described in any one of claims 26-31" should read --as described in any one of claims 26-27 and 29-31-- since claim 28 has been cancelled.

Appropriate correction is required.

### *Claim Rejections - 35 USC § 103*

2. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

> (a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negatived by the manner in which the invention was made.

3. Claims 26-27, 29 and 34 are rejected under 35 U.S.C. 103(a) as being unpatentable over Imai et al. (U.S. 5,975,772) in view of Taniguchi et al. (U.S. 4,737,822) and d'Hondt et al. (U.S. 5,041,718).

Imai et al. discloses a thermal developing apparatus, which extracts unexposed films (A) one by one and carries them to an exposure unit (46), radiates a laser beam (L) according to an image signal onto the film as it passes the exposure unit, and developing the exposed film by heating it at a heating unit (heating drum 68), which provide a uniform temperature distribution.

However, Imai et al. ('772) fails to disclose the interval between an exposure position of the exposure unit and a heat start position of the heating unit being shorter than the length of the film in the delivery direction, and the exposure process and heating process being performed in parallel simultaneously, and the U-shaped carrying path (claim 26), and the heating unit being provided with heating blocks arranged on either side of the film (claim 27).

Regardless, Taniguchi et al. discloses an image recording apparatus and method, which comprises the steps of providing unexposed films (S as cut sheets) one by one, carrying the unexposed films to an exposure unit (64), exposing the film by providing thermal energy according to an image to be recorded as the film passes the exposure unit, and developing the exposed film by heating it at a heating unit (26), the interval between an exposure position of the exposure unit and a heat start position of the heating unit being shorter than the length of the film in the delivery direction, and the exposure process and heating process being performed in parallel simultaneously (Fig.

4). Taniguchi et al. further teaches the heating unit being provided with two heating blocks (76 and 78) arranged on either side of the film, a film supply cassette (photosensitive material cartridge 50) in which the photosensitive material is stored, a film collection tray (tray 40) in which the exposed films are retrieved, being provided on opposite sides of two ends of an U-shaped carrying path, and the processes of exposure and heating being performed on a curved bottom face of the U-shaped carrying path (Fig. 4).

It would have been obvious at the time the invention was made to a person having ordinary skill in the art to modify the device of Imai et al. ('772) with the aforementioned teaching of Taniguchi et al. for the purpose of providing a more compact thermal developing device.

Although Imai et al. teaches the temperature distribution of the heating unit provided along the width of the film being constant, Imai et al. however fails to teach the adjustment of the intensity of the heater element of the heating unit in such a manner that the intensity of the heater element at the center is smaller than that at the two ends (claim 26) and wherein the number of windings of the heater element is changed accordingly (claim 34).

d'Hondt et al. teaches a heating element (10) used in an image transfer roller (8), which extends along the width of the receiving material (7), the heating element (10) having a higher heat-generating power in each of the edge zones (24 and 25) than in the middle zone (23) of the transfer roller (e.g., 2.7 W/mm in the edge zones as compared to 1.6 W/mm in the middle zone (col. 5, lines 59-67), wherein the heating

element (10) has more spiral windings per unit length at the ends than in the middle (Fig. 2).

It would have been obvious at the time the invention was made to a person having ordinary skill in the art to incorporate the heating element as taught by d'Hondt et al. in the modified device of Imai et al. The motivation for doing so would have been to provide a constant temperature distribution across the width of the film.

4. Claim 30 is rejected under 35 U.S.C. 103(a) as being unpatentable over Imai et al. in view of Taniguchi et al. and d'Hondt et al., as applied to claim 26 above, and further in view of Arai et al. (U.S. 6,215,103)

Imai et al., as modified by Taniguchi et al. and d'Hondt et al., discloses all the basic limitations of the claimed invention except for the film passage comprising two fluoresin coated opposing surfaces having a constant width.

Arai et al. discloses a heat developing apparatus (10, Fig. 1) having two heating boxes (heater boxes 20, 22) forming a film transporting passage in between, whose opposing surface layers (26) are Teflon-coated to provide a smooth transportation of the film therethrough (col. 6, lines 42-58). Arai et al. also teaches in a modified embodiment a heat developing apparatus (50) having two heating blocks (heater boxes 52, 54, Fig. 6) forming a film passage whose curvature is larger with respect to the emulsion side (upper side) of the film (12).

It would have been obvious at the time the invention was made to a person having ordinary skill in the art to modify the device of Imai et al., as modified by

Taniguchi et al. and d'Hondt et al., with the aforementioned teaching of Arai et al. The motivation of doing so would have been to provide a smooth passage of the film through the heating unit.

5. Claim 31 is rejected under 35 U.S.C. 103(a) as being unpatentable over Imai et al. ('772) in view of Taniguchi et al. and d'Hondt et al., as applied to claim 26 above, and further in view of Imai (6,023,283).

Imai et al. ('772), as modified by Taniguchi et al., discloses all the basic limitations of the claimed invention except for the density level detecting unit.

Regardless, Imai ('283) discloses an image forming apparatus and method for exposing and heat-developing films, and a density level detecting unit (LED 125 and light detector 127, Fig. 21) downstream to the heater for the detecting the density of the developed image such that the exposure unit is controlled through a feedback loop.

It would have been obvious at the time the invention was made to a person having ordinary skill in the art to modify the device of Imai et al. ('772) with the aforementioned teaching of Imai ('283) for the purpose of providing a better density control of the developed image.

6. Claim 32 is rejected under 35 U.S.C. 103(a) as being unpatentable over Imai et al. ('772) in view of Taniguchi et al., as applied to claim 26 above, and further in view of Donaldson et al. (U.S. 6,114,660).

Imai et al. ('772) in view of Taniguchi et al., discloses all the basic limitations of the claimed invention except for the provision of the cooling region at the exit of the heating unit and flatness regain rollers after the cooling region.

However, Donaldson et al. discloses a photothermographic imaging system including a heating unit or thermal processor (10) for thermally developing exposed photothermographic element (12), a cooling apparatus (80, Fig. 10) provided at the exit end of the thermal processor, and a set of rollers (84-88) for maintaining the flatness of the photothermographic element (col. 18, line 49 to col. 19, line 47).

It would have been obvious at the time the invention was made to a person having ordinary skill in the art to incorporate the cooling system and the set of rollers as taught by Donaldson et al. in the modified device of Imai et al. ('772) for the purpose of eliminating a possibility of curled film.

***Contact information***

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Hai C Pham whose telephone number is (571) 272-2260. The examiner can normally be reached on M-F 8:30AM - 5:30PM.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Stephen D Meier can be reached on (571) 272-2149. The fax phone number for the organization where this application or proceeding is assigned is 703-872-9306.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see http://pair-direct.uspto.gov. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

HAI PHAM
PRIMARY EXAMINER

June 14, 2004